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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

FEELY, MICHAEL J

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/561,619	Applicant(s) FUJITANI ET AL.	
	Examiner Michael J. Feely	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-19 is/are rejected.
- 7) ☒ Claim(s) 7 and 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20051220</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Pending Claims

Claims 1-20 are pending.

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Interpretation

2. Independent claim 1 features the open transitional language *contains*. In the body of the claim, components (A), (B), and (C) are provided in weight percentages, wherein the total of these components is 100 weight percent. Due to the open language, the amounts of (A), (B), and (C) have been interpreted as *relative* weight percentages, wherein the claim is open to additional materials. These additional materials do not factor into the claimed *relative* weight percentages.

Claim Rejections - 35 USC § 101/112

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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5. Claim 9 provides for the use of *the asphalt-epoxy resin composition*, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim 9 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 102/103

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-6 and 9-19 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Maillet et al. (US Pat. No. 5,708,062). *Note: this is the US-equivalent of the X-reference cited in the International Search Report.*

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Regarding claims 1-6 and 9-19, Maillet et al. disclose: **(1)** an asphalt-epoxy resin composition (Abstract) which contains (A) asphalt (Abstract: *see component A*; column 1, line 64 through column 2, line 2), (B) epoxy resin (Abstract: *see component B*; column 2, lines 3-37) and (C) maleic acid modified thermoplastic polymer (Abstract: *see component E*; column 3, lines 6-17; column 7, lines 34-36), and wherein the aforementioned epoxy resin (B) is a ternary copolymer comprising (i) lower α -olefin, (ii) lower alkyl acrylate or methacrylate and (iii) glycidyl acrylate or glycidyl methacrylate, and the molecules have terminal glycidyl groups (Abstract: *see component B*; column 2, lines 3-37);

(2) wherein the (i) lower α -olefin is ethylene, propylene or butylene (Abstract: *see component B*; column 2, lines 3-37);

(3 & 10) wherein the lower alkyl group of the lower alkyl acrylate or methacrylate (ii) is a methyl, ethyl, propyl or butyl group (Abstract: *see component B*; column 2, lines 3-37);

(4, 11 & 12) wherein the epoxy resin (B) is a ternary copolymer comprising (i) ethylene, (ii) n-butyl acrylate or methacrylate and (iii) glycidyl acrylate or glycidyl methacrylate, and the molecules have terminal glycidyl groups (Abstract: *see component B*; column 2, lines 3-37);

(5 & 13-15) wherein the epoxy resin (B) is a ternary copolymer comprising (i) from 30 to 90 wt% ethylene, (ii) from 10 to 70 wt% n-butyl acrylate or methacrylate and (iii) from 0.5 to 30 wt% glycidyl acrylate or glycidyl methacrylate, wherein the total amount of (i) + (ii) + (iii) is 100 wt%, and the molecules have terminal glycidyl groups (Abstract: *see component B*; column 2, lines 3-37);

(6 & 16-19) wherein the maleic acid modified thermoplastic polymer (C) is selected from one or more compounds of maleinated polyolefins, such as maleinated polyethylene and

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maleinated polypropylene, maleinated ethylene-vinyl acetate copolymers, petroleum resins produced from maleic acid modified petroleum fractions, maleic acid modified ethylene-ethyl acrylate copolymers, and maleic acid styrene-ethylene-butylene-styrene block copolymers (SEBS) (Abstract: *see component E*; column 3, lines 6-17; column 7, lines 34-36); and

(9) the use of the asphalt-epoxy resin composition of claim 1 for pavement applications (column 1, lines 1-9).

Maillet et al. disclose amounts similar to the instantly claimed *relative* weight percentages: (I) from 75 to 93 wt% asphalt (A), from 1 to 5 wt% epoxy resin (B), and from 6 to 20 wt% maleic acid modified thermoplastic polymer (C) wherein the total amount of (A) + (B) + (C) is 100 wt%. Specifically, they disclose: 100 parts of bitumen, corresponding to component A; 0.1 to 10 parts of copolymer, corresponding to component B, and 0 to 10 parts of modified polymer, corresponding to component C. It is not immediately clear if the relative amounts of the prior art are disclosed with sufficient specificity to warrant an anticipation rejection. However, the relative amounts of the prior art, at the very least, overlap the relative amounts of the instant invention. Such an overlap warrants an obviousness rejection.

Therefore, if not explicitly disclosed by Maillet et al., then the instantly claimed *relative* weight percentages would have been obviously satisfied by Maillet et al. It is not immediately clear if the relative amounts of the prior art are disclosed with sufficient specificity to warrant an anticipation rejection. However, the relative amounts of the prior art, at the very least, overlap the relative amounts of the instant invention. Such an overlap warrants an obviousness rejection.

Claim Rejections - 35 USC § 103

9. Claims 1-6 and 9-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Statz et al. (US 2003/0087997).

Regarding claims 1-6 and 9-19, Statz et al. disclose: **(1)** an asphalt-epoxy resin composition (Abstract) which contains (A) asphalt (paragraphs 0028-0030), (B) epoxy resin (paragraphs 0031-0036), and (C) maleic acid modified thermoplastic polymer (paragraphs 0037-0038), and wherein the aforementioned epoxy resin (B) is a ternary copolymer comprising (i) lower α -olefin, (ii) lower alkyl acrylate or methacrylate and (iii) glycidyl acrylate or glycidyl methacrylate, and the molecules have terminal glycidyl groups (paragraphs 0035-0036);

(2) wherein the (i) lower α -olefin is ethylene, propylene or butylene (paragraphs 0035-0036);

(3 & 10) wherein the lower alkyl group of the lower alkyl acrylate or methacrylate (ii) is a methyl, ethyl, propyl or butyl group (paragraphs 0035-0036);

(4, 11 & 12) wherein the epoxy resin (B) is a ternary copolymer comprising (i) ethylene, (ii) n-butyl acrylate or methacrylate and (iii) glycidyl acrylate or glycidyl methacrylate, and the molecules have terminal glycidyl groups (paragraphs 0035-0036);

(5 & 13-15) wherein the epoxy resin (B) is a ternary copolymer comprising (i) from 30 to 90 wt% ethylene, (ii) from 10 to 70 wt% n-butyl acrylate or methacrylate and (iii) from 0.5 to 30 wt% glycidyl acrylate or glycidyl methacrylate, wherein the total amount of (i) + (ii) + (iii) is 100 wt%, and the molecules have terminal glycidyl groups (paragraphs 0035-0036);

(6 & 16-19) wherein the maleic acid modified thermoplastic polymer (C) is selected from one or more compounds of maleinated polyolefins, such as maleinated polyethylene and

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maleinated polypropylene, maleinated ethylene-vinyl acetate copolymers, petroleum resins produced from maleic acid modified petroleum fractions, maleic acid modified ethylene-ethyl acrylate copolymers, and maleic acid styrene-ethylene-butylene- styrene block copolymers (SEBS) (paragraph 0038); and

(9) the use of the asphalt-epoxy resin composition of claim 1 for pavement applications (paragraph 0003).

Statz et al. disclose amounts similar to the instantly claimed *relative* weight percentages: (1) from 75 to 93 wt% asphalt (A), from 1 to 5 wt% epoxy resin (B), and from 6 to 20 wt% maleic acid modified thermoplastic polymer (C) wherein the total amount of (A) + (B) + (C) is 100 wt%. Specifically, they disclose: about 87 to about 99 wt% of asphalt, corresponding to component A *in an overlapping amount*; about 0.5 to about 10 wt% of copolymer, corresponding to component B *in an overlapping amount*, and about 0.5 to about 3 wt% of modified polymer, corresponding to component C. The amount of modified polymer, corresponding to component C, falls just short of the instantly claimed amount.

In light of this, it has been found that a *prima facie* case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties – *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985), (*see also* MPEP 2144.05). In the instant case, the skilled artisan would have expected the same or obvious results when using *about 3 wt%* and 6 wt%, as claimed. This is especially the case where: (a) Applicant is open to amounts outside of this preferred range; and (b) Applicant has failed to isolate this variable, demonstrating criticality for the instantly claimed range.

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Therefore, the composition of Statz et al. appears to be an obvious variation of the instantly claimed composition, wherein the only difference lies in the amount of component (C). It has been found that a *prima facie* case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. In the instant case, the skilled artisan would have expected the same or obvious results when using *about 3 wt%* and 6 wt%, as claimed. This is especially the case where: (a) Applicant is open to amounts outside of this preferred range; and (b) Applicant has failed to isolate this variable, demonstrating criticality for the instantly claimed range.

10. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maillet et al. (US Pat. No. 5,708,062) or Statz et al. (US 2003/0087997) in view of Kluttz et al. (US Pat. No. 5,451,619).

Regarding claim 8, neither Maillet et al. nor Statz et al. put any real restrictions on the type of asphalt/bitumen to be used. However, neither reference explicitly discloses: **(8)** wherein the asphalt is an oil-extended asphalt.

Kluttz et al. disclose a similar composition (*see Abstract*) wherein the bituminous component is optionally extended with petroleum extracts or oil (*see column 2, line 64 through column 3, line 2*). This teaching demonstrates that oil-extended asphalt is recognized in the art as a suitable bituminous material for (*epoxy*) reactive asphalt compositions. In light of this, it has been found that the selection of a known material based on its suitability for its intended use supports a *prima facie* obviousness determination – *see MPEP 2144.07*.

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Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use oil-extended asphalt, as taught by Kluttz et al., in the compositions of Maillet et al. or Statz et al. because the teachings of Kluttz et al. demonstrate that oil-extended asphalt is recognized in the art as a suitable bituminous material for (*epoxy*) reactive asphalt compositions.

Allowable Subject Matter

11. Claims 7 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter: the prior art fails to reasonably teach or suggest the maleic acid modified thermoplastic polymer (C), as claimed. Specifically, the prior art fails to reasonably teach or suggest a combination of:

- (iv) a polymer of melting point from 80 to 105°C where an ethylene-ethyl acrylate copolymer has been modified with maleic acid and the proportion of said polymer with respect to the asphalt-epoxy resin composition is from 0.1 to 18 wt%; and
- (v) a maleic acid modified styrene-ethylene-butylene-styrene block copolymer (SEBS) and the proportion of said polymer with respect to the asphalt-epoxy resin composition is from 2 to 6 wt%, and wherein the total amount of (iv) + (v) is from 6 to 20 wt%.

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Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Feely whose telephone number is (571)272-1086. The examiner can normally be reached on M-F 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Y. Pyon can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael J Feely/
Primary Examiner, Art Unit 1796

December 22, 2008